

# **A Brief Analysis Report on Drone Delivery Challenges**

## **1. Technical Challenges**

- **Complex Design:**  
Building a delivery drone is no simple task. It involves putting together various high-tech components that must work seamlessly. This complexity makes designing, building, and maintaining such drones difficult.
- **High Power Usage:**  
Drones carrying heavy loads (like packages) need strong motors to lift the weight of the drone itself and the package. This means they use a lot of power, which can make battery management tricky and expensive.
- **High Cost:**  
Strong motors and big batteries are expensive to produce. On top of that, using advanced technologies like computer vision for navigation and delivery adds even more to the cost.
- **Payload Challenges:**  
The drone has to manage not just the weight of the package but also stay stable in different weather conditions. This adds to the technical hurdles of creating an efficient drone.
- **Advanced Tech Requirements:**  
Features like AI for navigation, avoiding obstacles, and making decisions in real time make the drone smarter but also more complicated and expensive.
- **Using Mid-Level Drones:**  
A cheaper option could be modifying existing drones meant for videography, but there are limitations:
  - a) **Payload Limits:** Videography drones aren't built to carry heavy packages.
  - b) **Power and Range Issues:** These drones often can't fly far or for long, especially with added weight.
  - c) **TechModification:** While cheaper upfront, modifications like adding better GPS, obstacle avoidance, and delivery mechanisms could end up making them just as costly.

## **2. Service Related Challenges**

- **Poor Infrastructure in Bangladesh:**  
Many areas lack proper roads and have disorganized layouts. This makes it hard for drones to deliver directly to customers' doors.

- **Precision and Hovering Issues:**

In crowded urban areas, it's tough for drones to hover steadily and drop packages accurately. Lack of open spaces adds to this challenge.

- **Rooftop Delivery Dependency:**

Since door-to-door delivery might not be possible, drones could drop packages on rooftops of homes or malls. But this brings its own problems, like limited access to rooftops and the need to coordinate with customers.

- **Alternative Delivery Model:**

A practical idea could be using a vending machine-style service. Instead of delivering to every customer's home, drones could leave packages at a central pickup point (like a locker or vending machine). Customers can then collect their items at their convenience, similar to how Meituan does it. Here's a link to their service video: <https://youtu.be/1l-8NcbfJEs?si=V8OuMV71FGXIGb6V>

- **Public Trust:**

People in Bangladesh may not be used to seeing drones deliver packages. It'll take time and education to build trust and familiarity with this technology.